

## ABSTRACT OF THE DISCLOSURE

The present invention provides communication methods, systems, and apparatuses.. Methods are provided in which a second signal for transmission is obtained by halving values of an initial portion and a tail portion of a first signal, and adding zeros 5 following the tail portion. Upon or after reception, a third signal is obtained from the received second signal and used in obtaining information. Obtaining each of an initial portion and a tail portion of the third signal includes adding together at least a portion of each of the initial portion and the tail portion of the second signal.